
Space Weather Forecast

Issued on Wednesday, 16 November 2022 at 00:33 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: Chance of Moderate flares (Minor to Moderate radio blackouts) throughout. Slight chance of Minor) Radiation Storms and Strong flares (Strong radio blackouts).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity over the past 24 hours has been Moderate with numerous mid-upper Common-class flares, and one Moderate flare from the largest region on the disc in the northwest. This large, complex region poses the most significant risk for further flares at this time and is now approaching the limb. The other large region positioned just south of the most active region has continued to slowly decay. The third region in the northwest has shown little change in recent hours. The remaining region in the northeast appears small and simple. No significant Earth-directed Coronal Mass Ejections (CMEs) have been observed in available imagery.

Solar Wind / Geomagnetic Activity: The solar wind started the period at slightly elevated levels around 440 km/s and declined gradually to Low levels around 380 km/s. Total magnetic field strength has been weak throughout, with the important north-south component fluctuating weakly. Geomagnetic activity was Quiet (Kp 0-1) throughout.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background levels with no solar radiation storms.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to continue at mostly Low levels, with a chance of isolated Moderate flares throughout. The most likely source of flare activity is from the largest, most complex sunspot group in the far northwest.

Solar Wind / Geomagnetic Activity: No significant Earth-directed CMEs are expected during the period, though some minor CME effects are possible from a glancing blow either later on 17 Nov or during 18 Nov.

Solar winds are now at Low levels. There are two small coronal holes which may give some weak enhancement over the next 24 hours. Geomagnetic activity is expected to be predominantly Quiet through the period. There is a chance of isolated Active intervals if we encounter effects associated with the two coronal holes during Day 1 (16 Nov), or if we experience any weak CME related enhancements either late on Day 2 (17 Nov) or through the course of Day 3 (18 Nov).

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) is most likely to persist at background levels. However, there is a slight chance of an increase in solar radiation emanating from the two largest sunspot regions in the far northwest.

Geomagnetic Storms:

Geo-Magnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	5	1	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 M Class	Yes	50	50	30	10
Very Active	R3 to R5 X	No	10	10	5	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	15	15	15	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = cm⁻²sr⁻¹s⁻¹)